

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-12. (cancelled)

13. (Original) An electroplating apparatus for electroplating a surface of a wafer, comprising:

a first proximity head configured to be placed over the surface of the wafer, a first fluid electrically charged as an anode for depositing a metallic layer over the surface of the wafer is capable of being generated between the proximity head and the surface of the wafer; and

a second proximity head configured to be placed over the surface of the wafer, a second fluid electrically charged as a cathode for enabling a non-consumable chemical reaction over the surface of the wafer is capable of being generated between the proximity head and the surface of the wafer, wherein an electrical connection is defined between the first fluid and the second fluid when depositing the metallic layer over the surface of the wafer.

14. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein the first fluid provides electrical coupling to the substrate through electrolytic properties of the first fluid that is charged as the anode through electrical contact with a positive bias voltage supply.

15. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein the second fluid provides electrical coupling to the substrate through electrolytic properties of the second fluid that is charged as the cathode through electrical contact with a negative bias voltage supply.

16. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein beneath the second proximity head a non-consumable chemical reaction prevents dissolution of the metallic layer by producing an offsetting reaction.

17. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 16, wherein the non-consumable chemical reaction is an offsetting reaction produced by a reduction of oxidation process.

18. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein each of the plurality of inputs on the first proximity head and the second proximity head are defined as one of circular conduits, annular rings, and discrete conduits.

19. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein each of the plurality of outputs on the first proximity head and the second proximity head are defined as one of circular conduits, annular rings, and discrete conduits.

20. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein the fluid beneath the first proximity head is defined by one or more fluids and the fluids are selected from the group comprised of isopropyl alcohol (IPA), electrolytic solution, and a plating chemistry that enables metallic plating.

21. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 20, wherein the plating chemistry is defined by an aqueous solution for depositing metals including one of a copper material, a nickel material, a thallium material, a tantalum material, a titanium material, a tungsten material, a cobalt material, an alloy material, and a composite metallic material.

22. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein the fluid beneath the second proximity head is defined by one or more fluids and the fluids are selected from the group comprised of isopropyl alcohol (IPA), electrolytic solution, and water.

23. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein the localized metallic plating confines a volume of the fluid within an area beneath the first proximity head, the area being less than an entirety of the wafer surface.

24. (Original) An electroplating apparatus for electroplating a surface of a wafer as recited in claim 13, wherein an eddy current sensor enables monitoring of the localized metallic plating beneath the first proximity head.

25.-29. (Cancelled)